CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

May 29, 1987 / Vol. 36 / No. 20

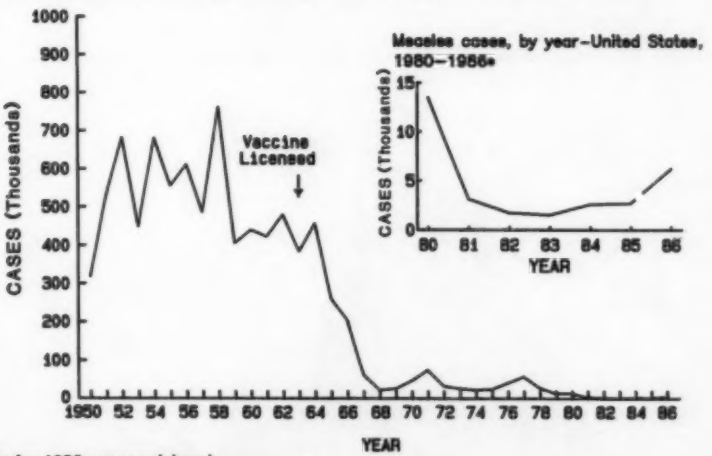
301 Measles — United States, 1986
306 Human Immunodeficiency Virus Infection Transmitted From an Organ Donor Screened for HIV Antibody — North Carolina
314 Rocky Mountain Spotted Fever — United States, 1986
316 Premature Mortality Due to Cerebrovascular Disease — United States, 1983

Epidemiologic Notes and Reports

Measles — United States, 1986

A provisional total of 6,273 cases of measles in the United States was reported to the *MMWR* for 1986. This represents a 2.2-fold increase over the 2,822 cases reported in 1985, but is still 98% below the reported incidence in prevaccine years (Figure 1). The overall incidence rate increased from 1.2 cases per 100,000 population in 1985 to 2.7/100,000 in 1986. Nine states and New York City accounted for 4,941 (78.8%) of the cases: New York City reported 945; New Jersey, 911; Illinois, 710; California, 486; Texas, 397; Florida, 395; Wisconsin, 287; Arkansas, 278; South Carolina, 274; and Arizona, 258. Eleven states and New York City had incidence rates greater than 4/100,000 population: New York City had a rate of 13.4; New Jersey, 12.4; Arkansas, 12.2; Arizona, 9.3; South Carolina, 8.8; Wisconsin, 6.2; Illinois, 6.2; New Hampshire, 4.7; Iowa, 4.6; Washington, 4.3; Kansas, 4.2; and Florida, 4.1. During 1986, 46 states

FIGURE 1. Measles (rubeola) cases, by year — United States, 1950-1986*



*Data for 1986 are provisional.

Measles — Continued

and 347 (11.1%) of the 3,138 counties in the United States reported measles, compared with 38 states and 220 (7.0%) counties in 1985.

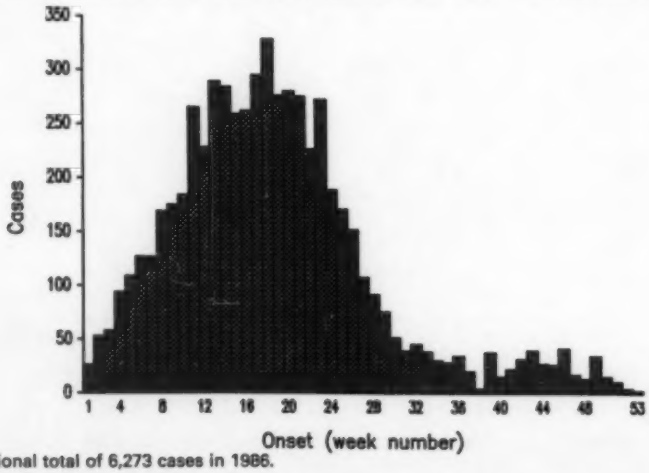
This report is based on detailed information reported to CDC's Division of Immunization on 6,255 of the provisional total of 6,273 cases for 1986. Of these, 96.9% met the standard case definition for measles*, and 34.2% were serologically confirmed. The usual seasonal pattern was observed, with the peak of the cases occurring in April (Figure 2). Otitis media was reported in 338 (5.4%) cases; pneumonia, in 152 (2.4%); and encephalitis, in 9 (0.1%). There were no deaths associated with measles.

One hundred and twenty-eight cases (2.0%) were known to be imported from other countries. An additional 123 (2.0%) cases were epidemiologically linked to imported cases within two generations of rash onset. There were 98 outbreaks (five or more epidemiologically related cases), accounting for 91.0% of all cases during 1986. Index cases were identified for 52 (53.1%) of outbreaks. Ten outbreaks with more than 100 cases each accounted for 58.8% of all reported cases.

In all age groups, the 1986 incidence rate was higher than the 1985 rate (Table 1) (*1*). The highest incidence rate in 1986 was reported among preschool-aged children<5 years of age (13.0 cases/100,000 population). Five states had outbreaks occurring predominantly among unvaccinated preschoolers. New Jersey had the highest incidence rate in preschoolers (108.9), followed by New York (56.4), Illinois (33.0), Florida (29.2), and Arizona (28.9). Of the total 2,454 preschool-aged children with measles, 692 (28.2%) were infants <1 year of age; 423 (17.2%) were 12-14 months of age; 114 (4.6%) were 15 months of age; and 1,225 (49.9%) were 16 months-4 years of age.

*Fever (38.3 C [101 F] or higher, if measured), generalized rash lasting 3 or more days, and at least one of the following: cough, coryza, or conjunctivitis.

FIGURE 2. Reported measles cases*, by week of rash onset — United States, 1986



*Provisional total of 6,273 cases in 1986.

Measles — Continued

Of the 3,528 patients (56.4%) for whom the setting of transmission was reported, 1,930 (54.7%) acquired measles in school (174 of these patients were on 21 college campuses); 689 (19.7%) acquired measles at home; 239 (6.8%), in medical settings; and 148 (4.2%), in day-care centers. The remaining cases were acquired in a variety of different settings, including churches, prisons, military training facilities, and the work place.

The vaccination status of patients in 1985 and 1986 was similar. Of the 6,255 patients reported for 1986, 39.3% had been appropriately vaccinated, including 992 (15.9%) who were vaccinated at 12-14 months of age and 1,466 (23.4%) who were vaccinated at ≥15 months of age. A total of 3,509 (56.1%) measles patients were unvaccinated, and 288 (4.6%) had histories of inadequate vaccination (vaccinated before the first birthday).

Of the 6,255 cases, 2,278 (36.4%) were classified as preventable (Table 2) (*2*). However, there were striking age-specific differences among them. The highest proportion of preventable cases occurred among persons who were not of school age: 83.2% of cases among children 16 months-4 years of age were preventable, as were 72.2% of cases among persons 20-29 years of age. In contrast, 29.4% of cases among school-aged persons (5-19 years of age) were preventable.

Of the 3,977 nonpreventable cases, 1,230 (30.9%) were among persons too young for routine vaccination (<16 months of age), and 194 (5.0%) were among persons too old (born before 1957); 2,377 (59.8%) had been vaccinated on or after their first birthday. Forty-eight cases (1.2%) occurred among foreign-born visitors to the United States. One hundred and twenty-eight (3.2%) patients had not been vaccinated because they either had medical contraindications or were exempt under state law (Table 3).

Reported by: Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: Since measles vaccine was licensed in 1963, the incidence of measles has declined to approximately 1%-2% of that reported in the prevaccine era (*3*). However, increases in the number of reported cases have occurred annually since the record low in 1983, when 1,497 cases were reported. There were more cases in 1986 than in any year since 1980, when 13,506 cases were reported (Figure 3).

TABLE 1. Reported measles cases and estimated incidence rates, by age of patients — United States, 1985 and 1986

	1985			1986*			
Age Group	No.	(%)	Rate†	No.	(%)	Rate†	Rate Change (%)
0-4 yrs.	826	(29.5)	4.7	2,454	(39.4)	13.0	(+176.6)
5-9 yrs.	255	(9.0)	1.6	675	(10.8)	3.9	(+143.8)
10-14 yrs.	503	(18.0)	2.9	1,313	(21.1)	8.1	(+179.3)
15-19 yrs.	843	(30.1)	4.5	1,168	(18.7)	6.3	(+40.0)
20-24 yrs.	231	(8.2)	1.1	290	(4.7)	1.4	(+27.3)
≥25 yrs.	143	(5.1)	0.1	336	(5.4)	0.3	(+200.0)
Unknown	12	—	—	19	—	—	—
Total	**2,813**	**(~100.0)**	**1.2**	**6,255**	**(~100.0)**	**2.7**	**(+125.0)**

*Provisional data.
†Per 100,000 population.

Measles — Continued

In 1986, as in 1985, preschool-aged children had the highest reported incidence rate. Forty percent of all measles cases occurred among this age group in 1986. This high incidence was the result of several outbreaks which involved a substantial proportion of preschool-aged children (*4-6*). These outbreaks occurred in densely populated, socioeconomically depressed urban areas. Immunization levels among preschoolers are known to be lower than those among school-aged children in many areas of the United States, and unvaccinated preschoolers were clustered in the areas where these outbreaks occurred. Large outbreaks also occurred among secondary

TABLE 2. Preventability of reported measles cases, by age of patients — United States, 1985 and 1986

	1985			1986*		
		Preventable			Preventable	
Age Group	Total Cases†	No.	(%)	Total Cases†	No.	(%)
≤15 mos	395	0	(0.0)	1,229	0	(0.0)
16 mos-4 yrs	431	318	(73.8)	1,225	1,019	(83.2)
5-9 yrs	255	63	(24.7)	675	237	(35.1)
10-14 yrs	503	93	(18.5)	1,313	318	(24.2)
15-19 yrs	843	191	(22.7)	1,168	372	(31.8)
20-24 yrs	231	98	(42.4)	290	213	(73.4)
25-29 yrs	72	57	(79.2)	170	119	(70.0)
≥30 yrs	71	0	(0.0)	166	0	(0.0)
Unknown	3§	0	(0.0)	19§	0	(0.0)
Total	**2,804**	**820**	**(29.2)**	**6,255**	**2,278**	**(36.4)**

*Provisional data.
†Patients with known preventability status.
§Preventability status was known for patients with unknown age.

TABLE 3. Classification of measles cases — United States, 1986*

	Cases	
Classification	**No.**	**(%)**
Nonpreventable		
Persons <16 months	1,230	(19.7)
Persons born before 1957	194	(3.1)
Appropriately vaccinated	2,377	(38.0)
Importations in non-U.S. citizens	48	(0.8)
Exemptions	128	(1.9)
Medical	(15)	
Religious	(77)	
Philosophic	(36)	
Subtotal	3,977	(63.6)
Preventable	2,278	(36.4)
Total	**6,255**	**(100.0)**

*Provisional data.

Measles — Continued

school students in 1986, and they accounted for the increased incidence rate in this age group. A smaller proportion of reported cases occurred on college campuses than in previous years (*1*).

Although the number of measles cases reported in 1986 is still only about 2% of that in the prevaccine era, the increase in the number of cases in 1986 is of concern. There may be many reasons for this large increase; however, unvaccinated preschool-aged children and vaccine failures in school-aged children are two of the major ones.

Preventable cases are the result of a failure to fully implement the current measles elimination strategy. Unvaccinated preschoolers 16 months-4 years of age accounted for 44.7% of the total preventable cases in 1986. Preschool-aged children are difficult to reach because they are often not enrolled in institutions that require vaccination. Greater efforts need to be directed at increasing immunization levels in this age group. Complete implementation of the immunization requirements for measles prior to school entry, which exist in all states, should decrease the number of preventable measles cases in the school-aged population.

A substantial proportion of cases continue to occur in appropriately vaccinated individuals. A variety of different strategies have been suggested to decrease the number of these cases, including a routine 2-dose schedule and mass or selective revaccination either routinely or during an outbreak. Because only a small percentage of persons who were vaccinated at ≥12 months of age are susceptible and because identification of these susceptible persons is difficult, all of these strategies would result in administration of a large proportion of vaccine to persons who are already immune. Some studies have demonstrated lower vaccine efficacy and higher attack rates in persons vaccinated at 12-14 months of age (the recommended age for vaccination in the United States from 1965 to 1976 was 12 months of age) compared with those vaccinated at the currently recommended age of 15 months (*7*). While routine revaccination of persons vaccinated at 12-14 months of age is not recommended[†], revaccination during selected outbreaks, particularly those in junior and senior high schools, may be considered (*8*).

While the continuing problem of measles in previously vaccinated persons suggests that additional strategies may be needed to eliminate measles from the United States, the present measles elimination strategy needs to be implemented more fully to decrease the number of preventable cases. Progress in measles control in other countries will also reduce the number of measles cases imported into the United States.

References

1. CDC. Measles—United States, 1985. MMWR 1986;35:366-70.
2. CDC. Classification of measles cases and categorization of measles elimination programs. MMWR 1983;31:707-11.
3. CDC. Measles surveillance report no. 11, 1977-1981. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, 1982.
4. CDC. Measles—Arizona. MMWR 1986;35:99-100, 105-7.
5. CDC. Measles—New Jersey. MMWR 1986;35:213-5.
6. CDC. Measles—Dade County, Florida. MMWR 1987;36:45-8.
7. Orenstein WA, Markowitz L, Preblud SR, Hinman AR, Tomasi A, Bart KJ. Appropriate age for measles vaccination in the United States. Dev Biol Stand 1986;65:13-21.
8. ACIP. Measles prevention. MMWR 1987 (In press).

[†]Vaccination at 12 months of age is still highly effective (>80%).

Epidemiologic Notes and Reports

Human Immunodeficiency Virus Infection Transmitted From an Organ Donor Screened for HIV Antibody — North Carolina

In August 1986, a cadaveric organ donor was found positive for antibody to the human immunodeficiency virus (HIV) by both enzyme immunoassay (EIA) and Western blot methods after some of the donated organs had been transplanted. A blood sample, which was taken after the donor had received a large number of blood transfusions, had been negative for HIV antibody. Two days later, when the organs were removed, more blood samples were collected. These were forwarded with the donated organs to the various transplantation centers. At one of these centers, one of these later samples was found to be seropositive.

Three persons received organs from this donor. Two of them were subsequently found to be seropositive for HIV antibody. The third, who had received the donor's heart, did not survive the transplant procedure. This is the first report of HIV transmission by organ transplantation from a donor screened for HIV antibody. A summary of the investigation of the donor and the two surviving recipients follows.

Donor. A 30-year-old man who was involved in a motor vehicle accident was admitted, while in a coma, to a North Carolina hospital. He was hypotensive because of bleeding from multiple head and neck lacerations. On admission, a blood sample was collected for type- and cross-matching, and blood transfusions were started within 1 hour. The donor's bleeding persisted despite surgery to improve hemostasis. Approximately 11 hours after admission, he had received a total of 56 units of blood and blood components (1 unit of whole blood, 28 units of packed red blood cells, 7 units of fresh frozen plasma, and 20 units of platelets). At this time, another blood sample was collected and tested for HIV antibody. The specimen was negative by EIA (Abbott Laboratories, North Chicago, Illinois; optical density ratio, sample/control = .103/.131). The donor's condition did not improve, and he was declared brain-dead 2 days after testing for HIV antibody. Family members consented to organ donation and denied any knowledge of the donor's having a risk factor for HIV infection.

The donor's kidneys, heart, and liver were removed and transported to other medical centers for transplantation. Samples of the donor's blood, which were collected when the organs were removed, were sent with each organ. As part of one center's routine procedure, one of these blood samples was tested for HIV antibody and was found positive by EIA (Genetic Systems, Seattle, Washington; optical density ratio = .95/<.30) and was subsequently found positive by Western blot assay. The transplantation teams were notified of the test result, but the heart, liver, and one kidney had already been transplanted.

Personnel from the hospital where the organs had been removed were contacted. They located both the serum sample collected on admission and the serum sample previously found negative for HIV antibody. The serum collected at the time of admission, before any transfusions were administered, was highly reactive on the Abbott EIAs performed at the hospital (optical density ratios = .766/.126, .556/.126) and at the North Carolina State Laboratory of Public Health (optical density ratios = .842/.108, .698/.137) and was also positive by Western blot assay at the state

HIV — Continued

laboratory. When testing was repeated, the serum collected after the blood transfusions was again seronegative by EIA at the hospital and by both EIA and Western blot methods at the state laboratory.

Recipient 1. A man with end-stage renal disease received the donated kidney that was transplanted. The recipient is married and denied risk factors for HIV infection. He was negative for HIV antibody 3 days after transplantation. A blood specimen collected 10 weeks after transplantation was positive for HIV antibody by EIA, and a specimen collected 1 week later was positive by both EIA and Western blot assay. The recipient had a fever 8 days after receiving the renal allograft, and a biopsy of it showed acute rejection. He improved with additional immunosuppressive therapy. To date, he has not developed any opportunistic illness and continues to feel well.

Recipient 2. A man with sclerosis of the bilary ducts and progressive liver failure received the donated liver. He is married and denied risk factors for HIV infection. He was tested 4 days after transplantation and was negative for HIV antibody. Twelve weeks after the procedure, he was positive for HIV antibody by EIA, and a specimen collected 4 weeks later was positive by both the conventional EIA and an EIA using recombinant viral proteins (ENVACORE, Abbott Laboratories). Four months after transplantation, the recipient developed fever and malaise. A liver biopsy showed moderate allograft rejection. The recipient's condition improved with an adjustment in immunosuppressive therapy, and he returned home the following month.

Reported by: TW Lane, MD, Univ of North Carolina, Chapel Hill, and Moses H Cone Memorial Hospital, Greensboro; R Meriwether, MD, FV Crout, PhD, JN MacCormack, MD, MPH, State Epidemiologist, North Carolina Dept of Human Resources. L Makowka, MD, Univ of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania. SA Lobel, PhD, PA Bowen, MD, RJ Caruana, MD, Medical College of Georgia, Augusta, Georgia. AIDS Program, Center for Infectious Diseases, CDC.

Editorial Note: Previous reports have linked kidney-transplant recipients who have subsequently become HIV-seropositive with donors who were later found to have risks for HIV infection (*1-4*). However, this is the first report of transplantation-associated HIV transmission from a cadaveric organ donor screened for HIV antibody. This donor appears to have been false-negative for HIV antibody by EIA as a result of the large number of transfusions he received before serum was collected for testing.

The Public Health Service recommended in May 1985 that potential organ donors be screened for HIV antibody (*5*). In January 1986, CDC conducted an anonymous survey of representatives from 44 transplantation programs attending a meeting of the Southeastern Organ Procurement Foundation. All of the 26 representatives who responded reported that their centers screened donors for HIV antibody. Three of these representatives (12%) also reported identifying at least one potential organ donor who was positive for HIV antibody by EIA and Western blot methods.

Organs from donors who are HIV-seropositive should not be used for transplantation except in very unusual circumstances. If an urgent need requires considering transplantation of an organ from a seropositive donor, the potential recipient or the appropriate family members should be informed of the risks of acquiring HIV infection. Such transplantation should not take place without the consent of either the potential recipient or the appropriate family members. When donors have been transfused before their organs are removed, testing for HIV antibody should be conducted on serum collected at the time of admission rather than on serum obtained after multiple transfusions. If donor serum collected at the time of admission is not

HIV — Continued

available from other sources, a pretransfusion sample may be available from the blood bank since many blood banks hold specimens collected for compatibility testing for at least 7 days (*6*).

References

1. Prompt CA, Reis MM, Grillo FM, et al. Transmission of AIDS virus at renal transplantation [Letter]. Lancet 1985;2:672.
2. L'age-Stehr J, Schwarz A, Offermann G, et al. HTLV-III infection in kidney transplant recipients [Letter]. Lancet 1985;2:1361-2.
3. Margreiter R, Fuchs D, Hansen A, et al. HIV infection in renal allograft recipients. Lancet 1986;2:398.
4. Kumar P, Pearson JE, Martin DH, et al. Transmission of human immunodeficiency virus by transplantation of a renal allograft, with development of the acquired immunodeficiency syndrome. Ann Intern Med 1987;106:244-5.
5. CDC. Testing donors of organs, tissues, and semen for antibody to human T-lymphotropic virus type III/lymphadenopathy-associated virus. MMWR 1985;34:294.
6. American Association of Blood Banks. Standards for blood banks and transfusion services. 12th ed. Washington, DC: American Association of Blood Banks, 1987:31.

TABLE I. Summary — cases specified notifiable diseases, United States

Disease	20th Week Ending			Cumulative, 20th Week Ending		
	May 23, 1987	May 17, 1986	Median 1982-1986	May 23, 1987	May 17, 1986	Median 1982-1986
Acquired Immunodeficiency Syndrome (AIDS)	211	209	N	6,928	4,765	N
Aseptic meningitis	66	93	70	1,703	1,680	1,561
Encephalitis: Primary (arthropod-borne & unspec)	10	13	12	298	300	347
Post-infectious	2	3	2	25	41	40
Gonorrhea: Civilian	9,193	15,247	17,081	292,737	317,180	318,974
Military	145	455	587	6,402	6,037	8,468
Hepatitis: Type A	296	423	371	9,276	8,455	8,455
Type B	323	503	471	9,460	9,680	9,441
Non A, Non B	24	72	N	1,136	1,332	N
Unspecified	46	87	107	1,231	1,898	2,066
Legionellosis	8	11	N	287	221	N
Leprosy	2	1	4	78	107	105
Malaria	13	21	21	280	282	281
Measles: Total*	55	174	72	1,722	2,841	1,190
Indigenous	47	166	N	1,509	2,720	N
Imported	8	8	N	213	117	N
Meningococcal infections: Total	23	65	59	1,341	1,283	1,343
Civilian	23	65	58	1,340	1,281	1,331
Military	-	-	-	1	2	5
Mumps	382	157	107	7,625	1,501	1,585
Pertussis	20	54	37	643	968	682
Rubella (German measles)	10	16	27	149	203	309
Syphilis (Primary & Secondary): Civilian	399	441	524	12,317	9,878	10,803
Military	-	1	6	72	84	135
Toxic Shock syndrome	7	5	N	116	136	N
Tuberculosis	348	444	459	7,466	7,659	7,884
Tularemia	1	2	2	40	25	39
Typhoid Fever	1	8	7	108	96	129
Typhus fever, tick-borne (RMSF)	11	18	24	47	88	86
Rabies, animal	74	140	137	1,898	2,178	2,178

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1987		Cum. 1987
Anthrax	-	Leptospirosis	9
Botulism: Foodborne	3	Plague	2
Infant	19	Poliomyelitis, Paralytic	-
Other	-	Psittacosis (Mich. 2, Oreg. 3)	34
Brucellosis (Tex. 5)	36	Rabies, human	-
Cholera	-	Tetanus (Kans. 1)	10
Congenital rubella syndrome	3	Trichinosis	22
Congenital syphilis, ages < 1 year	-	Typhus fever, flea-borne (endemic, murine)	10
Diphtheria	1		

*Two of the 55 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending May 23, 1987 and May 17, 1986 (20th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis(Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1987	1987	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1986	1987	1987	1987	1987	1987	Cum. 1987
UNITED STATES	6,928	66	298	25	292,737	317,180	298	323	24	48	8	78
NEW ENGLAND	296	4	12	1	10,108	6,793	8	39	2	2	1	6
Maine	11	-	1	-	311	376	-	-	-	-	-	-
N.H.	8	-	-	-	167	186	-	-	-	-	-	2
Vt.	4	-	2	-	74	104	-	1	-	-	-	-
Mass.	179	2	5	-	3,790	3,083	5	28	-	2	-	3
R.I.	24	2	3	1	798	673	1	1	-	-	1	-
Conn.	70	-	1	-	4,968	2,372	2	9	2	-	-	1
MID. ATLANTIC	2,099	7	38	3	46,783	53,211	13	30	3	4	-	5
Upstate N.Y.	263	7	15	2	6,399	6,028	11	23	2	2	-	-
N.Y. City	1,197	-	4	-	24,079	30,781	-	-	-	-	-	5
N.J.	457	-	4	-	6,064	7,138	2	7	1	2	-	-
Pa.	182	-	15	1	10,251	9,264	-	-	-	-	-	-
E.N. CENTRAL	456	5	73	-	35,544	42,687	14	37	3	4	3	2
Ohio	71	5	32	-	9,023	9,542	-	13	1	-	2	1
Ind.	32	-	3	-	3,412	4,831	-	-	-	-	-	-
Ill.	236	-	9	-	5,955	10,823	1	4	-	-	-	-
Mich.	82	-	25	-	13,739	12,816	13	20	2	4	1	-
Wis.	35	-	4	-	3,415	4,675	-	-	-	-	-	1
W.N. CENTRAL	159	9	15	-	12,328	13,491	9	7	1	1	2	-
Minn.	44	-	9	-	1,996	1,998	-	1	-	-	2	-
Iowa	11	4	1	-	1,160	1,373	-	2	1	-	-	-
Mo.	71	5	-	-	6,246	6,923	2	2	-	1	-	-
N. Dak.	1	-	-	-	118	122	-	-	-	-	-	-
S. Dak.	1	-	-	-	246	281	-	-	-	-	-	-
Nebr.	10	-	3	-	732	929	-	-	-	-	-	-
Kans.	21	-	2	-	1,830	1,865	7	2	-	-	-	-
S. ATLANTIC	1,144	14	44	10	79,649	80,163	25	83	-	8	-	5
Del.	9	-	1	-	1,180	1,314	3	1	-	-	-	-
Md.	152	2	7	2	9,462	9,491	2	14	-	3	-	2
D.C.	167	1	-	-	5,464	6,152	1	1	-	-	-	-
Va.	86	-	17	1	5,940	6,703	2	8	-	2	-	-
W. Va.	7	-	5	-	598	952	-	1	-	-	-	-
N.C.	48	1	8	-	12,172	13,410	4	12	-	1	-	-
S.C.	30	-	-	-	6,565	7,081	2	9	-	-	-	1
Ga.	173	2	-	-	13,676	12,445	4	9	-	-	-	-
Fla.	472	9	6	7	24,591	22,615	7	28	-	2	-	2
E.S. CENTRAL	78	3	18	3	22,416	26,293	10	21	1	-	-	-
Ky.	17	1	9	1	2,292	3,024	2	5	-	-	-	-
Tenn.	2	-	3	-	7,844	10,257	-	8	1	-	-	-
Ala.	51	2	6	-	7,180	7,457	7	6	-	-	-	-
Miss.	8	-	-	2	5,100	5,555	1	2	-	-	-	-
W.S. CENTRAL	657	11	31	2	34,411	38,874	61	41	5	12	2	4
Ark.	17	-	-	1	3,330	3,617	6	3	-	-	-	-
La.	94	3	5	-	6,200	6,973	4	5	-	-	-	-
Okla.	29	3	9	1	3,831	4,541	5	3	-	1	-	-
Tex.	517	5	17	-	21,050	23,743	46	30	5	11	2	4
MOUNTAIN	161	9	9	1	8,088	9,701	101	44	8	11	-	-
Mont.	2	-	-	-	190	259	1	1	-	-	-	-
Idaho	3	-	-	-	291	313	8	-	-	-	-	-
Wyo.	2	-	-	-	135	228	1	1	-	-	-	-
Colo.	81	3	1	-	1,729	2,565	23	5	-	7	-	-
N. Mex.	15	1	1	-	866	1,006	18	13	2	-	-	-
Ariz.	22	2	7	1	2,886	3,279	48	18	4	4	-	-
Utah	10	-	-	-	252	410	1	3	-	-	-	-
Nev.	26	3	-	-	1,730	1,641	1	3	2	-	-	-
PACIFIC	1,878	4	58	5	43,400	45,967	57	21	1	4	-	58
Wash.	99	-	6	1	3,186	3,650	37	17	-	3	-	2
Oreg.	37	-	-	-	1,725	1,826	18	2	1	1	-	-
Calif.	1,698	-	49	4	37,386	38,804	-	-	-	-	-	45
Alaska	5	1	2	-	724	1,155	2	2	-	-	-	-
Hawaii	39	3	1	-	379	532	-	-	-	-	-	9
Guam	-	-	-	-	72	46	-	-	-	-	-	-
P.R.	48	1	-	1	887	856	-	10	-	-	-	5
V.I.	-	-	-	-	96	84	-	-	-	1	-	-
Pac. Trust Terr.	-	-	-	-	176	84	-	-	-	-	-	38
Amer. Samoa	-	-	-	-	37	14	-	-	-	-	-	-

N Not notifiable U Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending May 23, 1987 and May 17, 1986 (20th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986
UNITED STATES	260	47	1,509	8	213	2,841	1,341	382	7,625	20	643	968	10	149	203
NEW ENGLAND	17	1	67	2	79	18	123	-	16	-	17	48	-	1	2
Maine	-	-	3	-	-	-	6	-	-	-	1	2	-	1	-
N.H.	-	-	49	-	65	-	13	-	6	-	2	17	-	-	1
Vt.	-	-	1	2§	10	-	7	-	2	-	3	2	-	-	-
Mass.	9	-	1	-	4	15	59	-	1	-	4	11	-	-	-
R.I.	4	1	1	-	-	1	11	-	2	-	-	1	-	-	-
Conn.	4	-	12	-	-	-	27	-	5	-	7	15	-	-	1
MID. ATLANTIC	23	1	274	-	39	952	129	7	121	3	88	93	2	7	28
Upstate N.Y.	11	1	11	-	8	17	57	6	52	2	68	62	2	5	18
N.Y. City	3	-	237	-	11	184	11	-	-	-	-	3	-	1	5
N.J.	4	-	6	-	3	767	-	-	35	-	4	9	-	1	3
Pa.	5	-	20	-	17	4	61	1	34	1	16	22	-	-	-
E.N. CENTRAL	9	7	161	-	16	556	175	105	4,406	1	77	170	-	19	17
Ohio	4	-	1	-	4	-	63	3	60	-	28	65	-	-	-
Ind.	2	-	-	-	-	-	20	-	580	-	1	16	-	-	-
Ill.	1	7	75	-	12	335	28	144	2,150	-	5	21	-	18	13
Mich.	2	-	23	-	-	-	52	16	586	1	25	20	-	1	3
Wis.	-	-	62	-	-	217	12	2	1,020	-	20	48	-	-	1
W.N. CENTRAL	8	12	101	2	14	139	66	109	989	4	38	48	-	1	7
Minn.	4	-	-	2†§	12	25	23	51	580	1	8	20	-	-	-
Iowa	2	-	-	-	-	1	3	44	277	3	6	9	-	1	-
Mo.	2	12	101	-	1	9	17	1	14	-	13	4	-	-	1
N. Dak.	-	-	-	-	-	11	1	-	5	-	1	2	-	-	-
S. Dak.	-	-	-	-	-	-	1	-	51	-	2	3	-	-	-
Nebr.	-	-	-	-	-	-	2	-	2	-	-	2	-	-	-
Kans.	-	-	-	-	1	93	19	13	41	-	8	8	-	-	6
S. ATLANTIC	49	1	43	1	5	376	236	5	129	3	137	381	2	11	1
Del.	1	-	-	-	-	1	4	-	-	-	-	207	1	1	-
Md.	11	-	-	-	-	24	21	1	13	-	2	47	-	2	-
D.C.	6	-	-	-	1	-	5	-	-	-	-	-	-	-	-
Va.	10	-	-	-	-	31	38	-	48	-	33	11	-	1	-
W. Va.	-	-	-	-	-	2	-	2	20	-	27	5	-	-	-
N.C.	7	-	-	1§	1	2	31	1	4	3	58	17	-	-	-
S.C.	3	-	-	-	-	299	24	1	11	-	-	7	-	-	-
Ga.	2	-	-	-	-	3	46	-	6	-	13	62	-	1	-
Fla.	9	1	43	-	3	14	67	-	27	-	4	25	1	6	1
E.S. CENTRAL	3	-	2	-	-	1	64	28	1,065	2	9	18	-	2	1
Ky.	1	-	-	-	-	-	11	-	202	-	1	1	-	2	1
Tenn.	1	-	-	-	-	1	22	24	848	-	1	5	-	-	-
Ala.	-	-	-	-	-	-	25	2	17	2	5	12	-	-	-
Miss.	1	-	2	-	-	-	6	-	-	-	2	-	-	-	-
W.S. CENTRAL	18	-	135	-	1	389	97	59	581	-	41	28	-	2	38
Ark.	1	-	-	-	-	278	10	38	241	-	2	2	-	1	-
La.	-	-	-	-	-	-	10	2	185	-	9	4	-	-	-
Okla.	3	-	-	-	1	10	16	N	N	-	30	22	-	-	-
Tex.	14	-	135	-	-	101	61	19	155	-	-	-	-	1	38
MOUNTAIN	9	25	263	2	14	177	51	9	142	1	60	97	-	15	1
Mont.	-	20	64	-	1	1	-	4	4	-	2	5	-	-	-
Idaho	1	-	-	-	-	-	4	-	3	-	18	28	-	1	-
Wyo.	-	-	-	2§	2	-	-	-	-	-	2	1	-	1	-
Colo.	1	5	5	-	-	6	15	1	23	-	17	21	-	-	-
N. Mex.	-	-	193	-	9	20	3	N	N	-	3	9	-	-	-
Ariz.	5	-	1	-	1	150	20	4	106	1	17	24	-	4	1
Utah	-	-	-	-	-	-	6	-	5	-	1	11	-	9	-
Nev.	2	-	-	-	1	-	3	-	2	-	-	-	-	-	-
PACIFIC	124	-	463	1	45	235	400	2	178	6	178	85	6	91	110
Wash.	7	-	1	-	-	52	50	-	29	1	26	33	-	-	3
Oreg.	4	-	2	1†	33	2	17	N	N	-	14	5	-	1	-
Calif.	110	-	460	-	8	161	327	-	131	-	73	44	-	62	105
Alaska	3	-	-	-	-	-	4	2	5	-	2	1	-	-	-
Hawaii	-	-	-	-	4	20	2	-	11	5	61	2	6	28	2
Guam	-	-	2	-	-	3	3	-	4	-	-	-	-	1	2
P.R.	1	-	404	-	-	18	2	1	5	-	11	5	-	1	58
V.I.	-	-	-	-	-	-	-	1	8	-	-	-	-	-	-
Pac. Trust Terr.	-	-	-	-	-	-	1	-	4	-	1	-	-	1	-
Amer. Samoa	-	-	-	-	-	1	-	-	3	-	-	-	-	-	-

*For measles only, imported cases includes both out-of-state and international importations.
N Not notifiable U Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending May 23, 1987 and May 17, 1986 (20th Week)

Reporting Area	Syphilis (Civilian) (Primary& Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1987
UNITED STATES	12,317	9,878	7	7,466	7,659	40	108	47	1,888
NEW ENGLAND	204	193	1	234	243	-	9	1	2
Maine	1	11	-	15	24	-	-	-	1
N.H.	2	7	-	5	10	-	-	-	-
Vt.	1	6	-	4	9	-	-	-	-
Mass.	101	95	1	120	113	-	7	1	-
R.I.	5	12	-	23	14	-	1	-	1
Conn.	94	62	-	67	73	-	1	-	-
MID. ATLANTIC	2,180	1,377	-	1,355	1,542	-	11	-	141
Upstate N.Y.	86	68	-	222	244	-	4	-	11
N.Y. City	1,512	773	-	638	740	-	-	-	-
N.J.	247	269	-	238	282	-	7	-	4
Pa.	345	267	-	257	276	-	-	-	126
E.N. CENTRAL	224	396	1	894	961	1	18	5	58
Ohio	39	50	1	179	162	1	6	5	-
Ind.	18	49	-	83	116	-	4	-	6
Ill.	80	217	-	347	421	-	4	-	25
Mich.	65	59	-	252	212	-	2	-	5
Wis.	22	21	-	33	50	-	2	-	22
W.N. CENTRAL	58	103	-	217	225	11	7	1	405
Minn.	6	17	-	56	53	-	2	-	92
Iowa	9	5	-	10	21	3	2	-	125
Mo.	27	55	-	114	113	7	3	1	18
N. Dak.	-	2	-	1	4	-	-	-	56
S. Dak.	5	1	-	9	10	-	-	-	76
Nebr.	7	8	-	11	4	-	-	-	12
Kans.	4	15	-	16	20	1	-	-	26
S. ATLANTIC	4,321	2,868	1	1,542	1,458	3	9	13	630
Del.	37	12	-	13	19	1	-	-	-
Md.	241	182	-	131	98	-	2	3	191
D.C.	135	132	-	45	52	-	-	-	21
Va.	101	173	-	155	135	1	1	-	161
W. Va.	5	8	-	44	47	-	1	1	22
N.C.	244	197	1	158	198	1	1	2	-
S.C.	285	273	-	144	160	-	-	6	26
Ga.	613	513	-	233	217	-	-	-	77
Fla.	2,660	1,378	-	619	534	-	4	1	32
E.S. CENTRAL	789	628	1	618	678	2	1	7	165
Ky.	6	27	1	166	173	1	-	-	79
Tenn.	343	237	-	163	182	-	1	4	51
Ala.	200	222	-	198	220	-	-	1	35
Miss.	240	142	-	91	93	1	-	2	-
W.S. CENTRAL	1,588	2,078	2	864	923	13	6	18	278
Ark.	82	98	-	90	106	5	1	1	69
La.	272	339	-	105	171	1	-	-	5
Okla.	66	62	1	86	86	7	2	17	9
Tex.	1,168	1,579	1	583	560	-	3	-	195
MOUNTAIN	280	231	-	183	172	7	3	1	183
Mont.	7	2	-	8	7	1	-	1	80
Idaho	3	1	-	16	5	1	-	-	-
Wyo.	22	-	-	-	-	-	-	-	37
Colo.	42	71	-	-	15	1	-	-	-
N. Mex.	21	26	-	36	35	1	3	-	-
Ariz.	127	98	-	107	78	2	-	-	33
Utah	7	4	-	6	16	1	-	-	1
Nev.	51	31	-	10	15	-	-	-	2
PACIFIC	2,663	2,004	1	1,559	1,457	3	44	1	166
Wash.	31	50	1	68	77	1	1	-	-
Oreg.	104	42	-	43	49	2	-	-	-
Calif.	2,521	1,894	-	1,330	1,235	-	41	1	165
Alaska	2	-	-	22	24	-	-	-	1
Hawaii	5	18	-	76	72	-	2	-	-
Guam	2	1	-	4	30	-	-	-	-
P.R.	389	318	-	95	114	-	-	-	24
V.I.	3	-	-	1	1	-	-	-	-
Pac. Trust Terr.	83	119	-	56	10	-	9	-	-
Amer. Samoa	2	-	-	-	3	-	-	-	-

U Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending May 23, 1987 (20th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	>65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	656	462	113	44	16	21	45
Boston, Mass.	197	125	40	17	6	9	18
Bridgeport, Conn.	53	40	7	3	2	1	4
Cambridge, Mass.	29	24	2	1	-	2	7
Fall River, Mass.	16	9	7	-	-	-	-
Hartford, Conn.	66	51	7	5	1	2	-
Lowell, Mass.	22	16	3	1	2	-	1
Lynn, Mass.	19	14	3	1	-	1	-
New Bedford, Mass.†	26	21	4	1	-	-	1
New Haven, Conn.	21	12	4	3	1	1	1
Providence, R.I.	68	51	8	3	1	5	2
Somerville, Mass.	6	6	-	-	-	-	1
Springfield, Mass.	41	25	12	2	2	-	5
Waterbury, Conn.	31	25	4	2	-	-	4
Worcester, Mass.	61	43	12	5	1	-	1
MID. ATLANTIC	2,651	1,719	531	275	67	55	121
Albany, N.Y.	56	44	4	6	1	1	2
Allentown, Pa.	21	12	2	7	-	-	-
Buffalo, N.Y.	103	60	33	4	3	3	8
Camden, N.J.	29	21	3	3	2	-	-
Elizabeth, N.J.	32	24	4	3	-	-	-
Erie, Pa.	36	28	6	1	1	-	2
Jersey City, N.J.	59	37	9	7	1	2	1
N.Y. City, N.Y.	1,484	928	309	190	40	27	86
Newark, N.J.	63	35	21	18	1	8	2
Paterson, N.J.	19	11	6	2	-	-	-
Philadelphia, Pa.	309	200	66	27	11	5	24
Pittsburgh, Pa.	67	51	10	1	3	2	2
Reading, Pa.	37	30	4	3	-	-	4
Rochester, N.Y.	96	74	16	5	-	1	6
Schenectady, N.Y.	23	20	3	-	-	-	3
Scranton, Pa.	44	33	10	-	-	1	4
Syracuse, N.Y.	72	50	16	3	1	2	1
Trenton, N.J.	36	24	4	2	3	3	3
Utica, N.Y.	23	17	4	2	-	-	-
Yonkers, N.Y.	22	20	1	1	-	-	3
E.N. CENTRAL	2,292	1,538	488	157	63	56	98
Akron, Ohio	84	53	17	6	5	3	4
Canton, Ohio	29	22	4	1	2	-	1
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	114	83	26	3	2	-	7
Cleveland, Ohio	161	98	40	15	4	4	6
Columbus, Ohio	123	72	29	13	7	2	3
Dayton, Ohio	106	70	27	6	3	-	3
Detroit, Mich.	260	157	50	36	14	3	8
Evansville, Ind.	35	26	7	1	1	-	-
Fort Wayne, Ind.	58	42	10	4	1	1	3
Gary, Ind.	22	14	6	-	2	-	1
Grand Rapids, Mich.	56	43	8	3	1	3	5
Indianapolis, Ind.	176	115	32	14	6	9	7
Madison, Wis.§	48	38	7	-	2	1	4
Milwaukee, Wis.	137	109	21	2	1	4	6
Peoria, Ill.	44	35	5	3	1	-	6
Rockford, Ill.	50	38	10	2	-	-	7
South Bend, Ind.	59	39	14	5	-	1	5
Toledo, Ohio	119	88	23	5	-	3	6
Youngstown, Ohio	45	34	7	3	1	-	-
W.N. CENTRAL	809	554	148	50	27	30	62
Des Moines, Iowa	76	56	16	3	1	-	4
Duluth, Minn.	39	31	3	2	1	2	2
Kansas City, Kans.	32	14	14	2	1	1	1
Kansas City, Mo.	106	74	20	6	3	2	5
Lincoln, Nebr.	34	28	3	-	2	1	3
Minneapolis, Minn.	160	118	31	16	5	10	18
Omaha, Nebr.	90	58	19	6	4	3	6
St. Louis, Mo.	133	85	28	9	5	6	13
St. Paul, Minn.	61	43	8	3	3	4	-
Wichita, Kans.	59	47	6	3	2	1	10

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	>65	45-64	25-44	1-24	<1	Total
S. ATLANTIC	1,203	748	239	129	43	41	67
Atlanta, Ga.	172	97	34	14	12	15	7
Baltimore, Md.	187	115	41	23	4	4	10
Charlotte, N.C.	84	52	23	5	4	-	6
Jacksonville, Fla.	112	79	20	7	5	1	6
Miami, Fla.	84	54	13	15	1	1	1
Norfolk, Va.	52	37	7	4	3	1	5
Richmond, Va.	83	49	18	10	4	1	12
Savannah, Ga.	50	30	8	4	2	6	4
St. Petersburg, Fla.	82	63	8	7	-	4	5
Tampa, Fla.	86	50	22	9	1	3	7
Washington, D.C.	187	103	42	29	7	5	2
Wilmington, Del.	24	19	3	2	-	-	2
E.S. CENTRAL	681	447	155	34	26	19	47
Birmingham, Ala.	134	84	36	9	1	4	6
Chattanooga, Tenn.	45	29	10	5	1	-	2
Knoxville, Tenn.	70	49	14	3	3	1	7
Louisville, Ky.	114	71	28	4	6	5	6
Memphis, Tenn.	127	93	27	2	3	2	16
Mobile, Ala.	81	52	17	5	5	2	4
Montgomery, Ala.	34	20	10	1	3	-	1
Nashville, Tenn.	76	49	13	5	4	5	5
W.S. CENTRAL	1,256	740	301	121	52	42	49
Austin, Tex.	49	27	9	8	3	2	4
Baton Rouge, La.	30	17	9	1	3	-	-
Corpus Christi, Tex.	41	24	11	4	2	-	-
Dallas, Tex.	188	112	44	20	6	6	5
El Paso, Tex.	59	33	15	6	3	2	3
Fort Worth, Tex	104	61	28	7	4	4	3
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	56	34	13	5	-	4	6
New Orleans, La.	113	62	30	11	5	5	-
San Antonio, Tex.	179	115	34	13	10	7	10
Shreveport, La.	41	26	8	5	2	-	4
Tulsa, Okla.	88	53	26	7	1	1	7
MOUNTAIN	606	387	117	57	29	15	23
Albuquerque, N. Mex.	72	43	11	7	8	3	3
Colo. Springs, Colo.	36	20	7	6	2	1	4
Denver, Colo.	98	70	13	10	3	1	2
Las Vegas, Nev.	62	50	25	6	1	-	3
Ogden, Utah	15	11	1	3	-	-	2
Phoenix, Ariz.	135	81	26	15	6	7	4
Pueblo, Colo.	18	14	2	1	1	-	-
Salt Lake City, Utah	48	31	6	4	4	3	1
Tucson, Ariz.	102	67	26	5	4	-	4
PACIFIC	2,010	1,322	383	172	83	44	109
Berkeley, Calif.	15	8	4	-	1	2	1
Fresno, Calif.	95	66	19	4	5	1	8
Glendale, Calif.§	27	24	3	-	-	-	2
Honolulu, Hawaii	78	57	14	4	2	1	10
Long Beach, Calif.	52	33	12	1	2	4	-
Los Angeles Calif.§	569	365	116	58	23	4	19
Oakland, Calif.	90	53	19	7	3	7	8
Pasadena, Calif.§	26	21	3	-	1	1	2
Portland, Oreg.	166	118	29	10	9	-	8
Sacramento, Calif.	155	95	32	15	9	4	5
San Diego, Calif.	173	113	33	16	6	4	16
San Francisco, Calif.	136	72	27	26	6	4	8
San Jose, Calif.	191	129	36	14	7	5	12
Seattle, Wash.	135	98	19	13	3	2	5
Spokane, Wash.	60	39	10	3	4	4	5
Tacoma, Wash.	42	31	7	1	2	1	-
TOTAL	12,164††	7,917	2,455	1,049	406	323	621

*Mortality data in this table are voluntarily reported from 121 cities in the United states, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past 4 weeks.

TABLE V. Estimated years of potential life lost before age 65 and cause-specific mortality, by cause of death – United States, 1985

Cause of mortality (Ninth Revision ICD)	YPLL for persons dying in 1985*	Cause-specific mortality, 1985† (rate/100,000)
ALL CAUSES (Total)	11,844,475	874.8
Unintentional Injuries§ (E800-E949)	2,235,064	38.6
Malignant neoplasms (140-208)	1,813,245	191.7
Diseases of the heart (390-398,402,404-429)	1,600,265	325.0
Suicide, homicide (E950-E978)	1,241,688	20.1
Congenital anomalies (740-759)	694,715	5.5
Prematurity¶ (765, 769)	444,931	2.9
Sudden infant death syndrome (798)	313,386	2.0
Cerebrovascular disease (430-438)	253,044	64.0
Chronic liver diseases and cirrhosis (571)	235,629	11.2
Pneumonia and influenza (480-487)	168,949	27.9
Acquired Immunodeficiency Syndrome (AIDS)**	152,595	2.3
Chronic obstructive pulmonary diseases (490-496)	129,815	31.2
Diabetes mellitus (250)	128,229	16.2

*For details of calculation, see footnotes to Table V, *MMWR* 1987;36:56.
†Cause-specific mortality rates as reported in the National Center for Health Statistics' *Monthly Vital Statistics Report* are compiled from a 10% sample of all deaths.
§Equivalent to accidents and adverse effects.
¶Category derived from disorders relating to short gestation and respiratory distress syndrome.
**Reflects CDC surveillance data.

Current Trends

Rocky Mountain Spotted Fever — United States, 1986

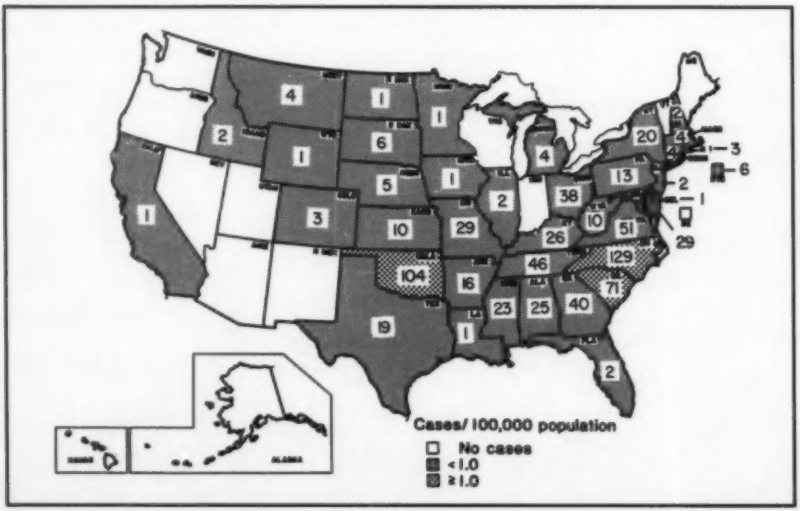
For 1986, a provisional total of 755 cases of Rocky Mountain spotted fever (RMSF) was reported to the *MMWR* for an incidence rate of 0.32 cases per 100,000 population. Oklahoma had the highest rate (104 cases, 3.2/100,000), and North Carolina reported the most cases (129 cases, 2.1/100,000). South Carolina was the only other state with a rate>1.0/100,000 (71 cases, 2.1/100,000) (Figure 1). The South Atlantic region, with a rate of 0.83/100,000, accounted for 333 (44%) of the total number of cases.

Report forms were submitted on 654 cases (87%). Three hundred and fifty of these (54%) were laboratory confirmed, and 304 (46%) were probable or not confirmed*. Characteristics of these cases were similar to those observed in other recent years. In 1986, the median age of patients was 24 years. Forty-five percent of patients were ≤20 years of age, 62% were male, and 92% were white. Ninety-five percent of patients experienced onsets of illness during the period April 1-September 30; 47% experienced onsets in May and June. Sixty-two percent reported tick bites. Symptoms included fever (94%), headache (89%), and myalgia (87%). Eighty-seven percent of patients had rash, which, for 53% percent, was located on the palms and/or soles.

The overall fatality rate was 3.0%. The rate was higher for individuals ≥40 years of age (5.8%) than for those <40 years of age (1.9%). The fatality rate was lower for

*Confirmation criteria have been published previously (*1*).

FIGURE 1. Reported Rocky Mountain spotted fever cases and rates, by state — United States, 1986



RMSF — Continued

persons who had been bitten by ticks (1.5%) than for those with no known exposure to ticks (6.6%).

Reported by: R Tanaka, College of Veterinary Medicine, Univ of Minnesota, St Paul, Minnesota. Viral and Rickettsial Zoonoses Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: The number of reported cases and the national incidence rate of RMSF increased slightly in 1986. However, incidence in the two major RMSF endemic regions (the South Atlantic and the West South Central regions[†]) and most of the rest of the country has fallen considerably since the early 1980s. In the South Atlantic states, the rate rose from 0.76/100,000 population in 1970 to a peak of 1.91/100,000 in 1981 and has now fallen to 0.83/100,000. In the West South Central region, the rate rose from 0.20/100,000 in 1970 to 1.44/100,000 in 1983 and is now 0.53/100,000. The reason for the recent decrease is unknown. It should also be noted that the proportion of actual cases represented by the provisional total of reported cases is unknown.

The best method of preventing RMSF is to avoid tick-infested areas. Persons who cannot should wear protective clothing and use tick repellent while in tick-infested areas. In addition, exposed areas of the body should be checked every few hours for tick attachment. Ticks should be removed by grasping them gently with tweezers as close as possible to the point of attachment and pulling slowly and steadily (*2*). The bite should be cleansed like any skin wound, especially if tick mouth parts remain. Ticks can be removed by hand, but fingers should be protected with tissue paper and washed afterward. Persons living or working in tick-infested areas should be made aware of tick-borne diseases and their prevention. No vaccine is available for RMSF, although research continues in this area (*3*).

Patients with symptoms of RMSF should usually be treated with tetracycline or chloramphenicol before the results of serologic testing are available because diagnostic titers are not present in the majority of patients before the second week of illness (*4*). Treatment should be considered for symptomatic patients who have been in an RMSF endemic area even if they do not have a rash and were not exposed to ticks. The absence of both rash and a history of tick exposure has been shown to delay presumptive diagnosis and, therefore, to increase the fatality rate among this group (*5*). Physicians are encouraged to report suspected cases of RMSF to state and local health departments. Most state health departments can perform serologic testing for RMSF.

References

1. CDC. Rocky Mountain spotted fever—United States, 1985. MMWR 1986;35:247-9.
2. Needham GR. Evaluation of five popular methods for tick removal. Pediatrics 1985;75: 997-1002.
3. McDonald GA, Anacker RL, Garjian K. Cloned gene of *Rickettsia rickettsii* surface antigen: candidate vaccine for Rocky Mountain spotted fever. Science 1987;235:83-5.
4. Kaplan JE, Schonberger LB. The sensitivity of various serologic tests in the diagnosis of Rocky Mountain spotted fever. Am J Trop Med Hyg 1986;35:840-4.
5. Hattwick MAW, Retailliau H, O'Brien RJ, Slutzker M, Fontaine RE, Hanson B. Fatal Rocky Mountain spotted fever. JAMA 1978;240:1499-1503.

[†]These regions are defined in Table III, p. 309.

Progress in Chronic Disease Prevention

Premature Mortality Due to Cerebrovascular Disease — United States, 1983

Cerebrovascular disease is the third leading cause of death in the United States and the eighth leading cause of years of potential life lost before the age of 65 (YPLL) (*1,2*). In this report, which assesses the contribution of cerebrovascular disease to YPLL, YPLL was calculated using the National Center for Health Statistics' detailed mortality data from computerized death certificate tapes for 1983, the latest year for which data are available. Data on YPLL attributable to all forms of cerebrovascular disease (International Classification of Diseases, 9th Revision, Codes 430-438) were analyzed by sex and race of the decedents. For the purpose of comparison, YPLL rates per 100,000 persons <65 years of age were calculated.

Differences in YPLL, by sex. In 1983, men accounted for slightly over half of the total YPLL due to cerebrovascular disease (Table 1). Overall and within each racial group, the rates of YPLL were slightly higher for men than for women (rate ratio, men to women = 1.1).

Differences in YPLL, by race. Although blacks constitute only 12% of the U.S. population, they accounted for 28% of YPLL due to cerebrovascular disease (Table 1). The rate of YPLL due to cerebrovascular disease was 2.6 times higher among blacks than among whites. These racial differences were observed for both men and women.

Reported by: Epidemiology Br, Div of Nutrition, Center for Health Promotion and Education, CDC.

Editorial Note: Analysis of YPLL data has proven useful in assessing the impact of preventable causes of death on premature mortality (*1*). This information is also valuable in determining priorities for prevention activities. For example, the findings reported here reemphasize the importance of identifying, treating, and controlling hypertension, especially among blacks.

Blacks accounted for a disproportionate percentage of YPLL due to cerebrovascular disease. The rate of YPLL for blacks was more than two and one-half times higher than the rate for whites. Based upon blood pressure measurements from the second National Health and Nutrition Examination Survey (NHANES II), 37.9% of blacks are

TABLE 1. Years of potential life lost before age 65 (YPLL) due to cerebrovascular disease, by sex and race — United States, 1983

	YPLL								
	Males			Females			Both Sexes		
Race	No.	(%)	Rate*	No.	(%)	Rate*	No.	(%)	Rate*
White	96,077	(37)	110	85,132	(33)	97	181,209	(70)	104
Black	36,069	(14)	291	35,043	(14)	260	71,112	(28)	275
Other	2,730	(1)	93	2,468	(1)	81	5,198	(2)	87
All	134,876	(52)	131	122,643	(48)	118	257,519	(100)	125

*YPLL/100,000 persons.

Premature Mortality — Continued

hypertensive*, compared with 32.6% of whites (*3*). Additionally, blacks are more likely to have severe hypertension.

The major risk factor for stroke is hypertension, a condition which often remains asymptomatic for decades until it is manifested as a stroke in later life. It is, therefore, not surprising that, while cerebrovascular disease is the third leading cause of death in the United States, it ranks eighth in YPLL (*2*). This could change, however. Projected increases in the number of persons >65 in coming decades† could alter the perception among health professionals and the public of what constitutes "premature mortality". If, as a result, the somewhat arbitrary definition of 65 years as the cutoff for YPLL was raised to 75 or even 85 years of age, cerebrovascular disease would increase in perceived importance as a preventable cause of premature mortality in the United States.

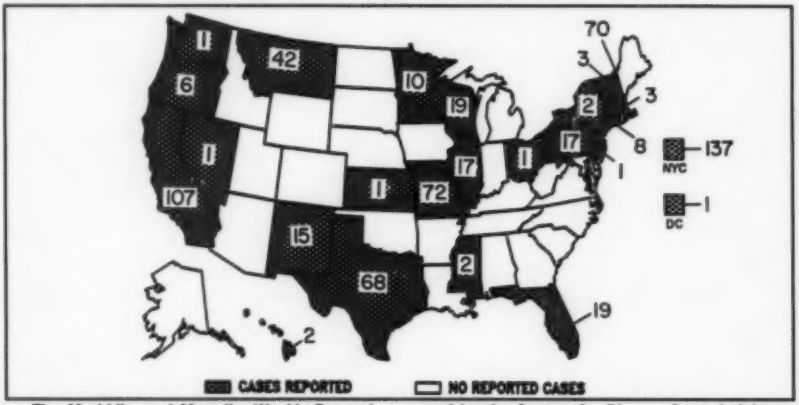
References

1. CDC. Premature mortality in the United States: public health issues in the use of years of potential life lost. MMWR 1986;35(suppl 2S)1S-11S.
2. CDC. Changes in premature mortality—United States, 1984-1985. MMWR 1987;36:55-7.
3. National Heart, Lung, and Blood Institute, National Institutes of Health. Hypertension prevalence and the status of awareness, treatment, and control in the United States. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, 1985.
4. Vaupel JW, Gowan AE. Passage to Methuselah: some demographic consequences of continued progress against mortality. Am J Public Health 1986;76:430-3.

*Persons whose blood pressure is ≥140 mm Hg systolic/90 mm Hg diastolic or who are taking antihypertensive medication.

†Even if age-specific mortality does not change, it has been projected that the population ≥65 years of age will increase from the estimated 23.2 million in 1980 to 41.3 million in 2080 (*4*).

FIGURE I. Reported measles cases — United States, weeks 16-19, 1987



The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

Director, Centers for Disease Control
James O. Mason, M.D., Dr.P.H.
Director, Epidemiology Program Office
Carl W. Tyler, Jr., M.D.
Editor
Michael B. Gregg, M.D.
Managing Editor
Gwendolyn A. Ingraham

☆U.S. Government Printing Office: 1987-730-145/40061 Region IV

DEPARTMENT OF
HEALTH & HUMAN SERVICES
Public Health Service
Centers for Disease Control
Atlanta, GA 30333

Official Business
Penalty for Private Use $300

Postage and Fees Paid
U.S. Dept. of H.H.S.
HHS 396

A 48106SER 06 8639 9 X
SERIALS ACQUISITION DEPT
UNIVERSITY MICROFILMS
300 NORTH ZEEB ROAD
ANN ARBOR, MI 48106

HHS Publication No. (CDC) 87-8017

Redistribution using indicia is illegal.